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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.          | CONFIRMATION NO. |
|--|-------------|----------------------|------------------------------|------------------|
| 10/668,925   | 09/23/2003  | Robert L. Canella    | 2269-4322.1US<br>(MUEI-0542) | 3353             |
| 24247  | 7590        | 02/08/2005           | EXAMINER                     |                  |
| TRASK BRITT<br>P.O. BOX 2550<br>SALT LAKE CITY, UT 84110 |             |                      | NGUYEN, DONGHAI D            |                  |
|  |             |                      | ART UNIT                     | PAPER NUMBER     |
|  |             |                      | 3729                         |                  |
| DATE MAILED: 02/08/2005                                  |             |                      |                              |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/668,925 | <b>Applicant(s)</b><br>CANELLA, ROBERT L. |  |
|                              | <b>Examiner</b><br>Donghai D. Nguyen | <b>Art Unit</b><br>3729                   |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 14-17 and 23-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 18-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/23/03 &amp; 9/27/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-13 and 18-22, drawn to a method of fabricating a substrate assembly, classified in class 29, subclass 857.
  - II. Claims 14-17 and 23-27, drawn to a method of fabricating a substrate assembly, classified in class 29, subclass 861.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions Group I and Group II are related as combination and subcombination.

Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the invention Group I does not require the second physical characteristic of the resilient conductive material. The subcombination has separate utility such as changing the physical characteristic of the resilient conductive layer.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Joseph A. Walkowski on January 31, 2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-

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13 and 18-22. Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-17 and 23-27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Drawings***

5. Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --METHOD OF FORMING A CONTACT ARRAY IN SITU ON A SUBSTRATE--.

7. The abstract of the disclosure should be directed to an elected method invention. Correction is required. See MPEP § 608.01(b).

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-3, 6-13, and 18-22 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,802,699 to Fjelstad et al.

Regarding to claim 1, Fjelstad et al disclose a method of fabricating a substrate assembly comprising: providing a substrate (30/755) having a first surface and an opposing second surface; forming a layer (Figs. 8/18) of resilient conductive material (Col. 11, lines 3-9) on at least a portion of at least one of said first and second surfaces of said substrate (Figs. 8 or 18; Col. 17, lines 32-36); forming at least one electrically isolated spring-biased electrical contact (38/145/742) in said layer of resilient conductive material; forming at least one electrically isolated conductive trace (38/148) in said layer of resilient conductive material, said at least one electrically isolated conductive trace having an end terminating at said at least electrically isolated spring-biased electrical contact (Figs 4/8); and treating said layer of resilient conductive material after said forming said at least one electrically isolated spring-biased electrical contact to achieve at least one desired physical characteristic of said layer of resilient conductive material (by etching or plating see Col. 20, lines 40-60).

Regarding claims 2 and 3, Fjelstad et al disclose the step of providing and bonding a laminate sheet of said resilient conductive material the substrate by adhering (Col. 17, lines 33-35 and Figs. 3-6) using a thermocompression bonding process (laminating Col. 20, lines 6-20).

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Regarding claims 6 and 7, Fjelstad et al disclose at least one via (36) in said substrate (30), said at least one via underlying said at least one electrically isolated spring-biased electrical contact (42) and a via opening only to said at least one of said first and second surfaces of said substrate (Figs. 3-6).

Regarding claim 8, see Col. 15, lines 4-7.

Regarding claims 9-11, Fjelstad et al disclose the forming at least one contact element (643/743) on a surface of electrical contact surface (642/742) by etching (Col. 20, lines 53-55).

Regarding claim 12, see Figs. 3, 9 and 12.

Regarding claim 13, see Col. 20, lines 6-40

Regarding claims 18-22, Fjelstad et al disclose a dielectric layer (755) overlying said layer of resilient conductive material (738), said dielectric layer being formed with at least one aperture having frustoconical configuration (752) substantially aligned with said electrical contact and the dielectric layer to be of sufficient thickness to encompass at least a portion of each lead element of an integrated circuit device contacting said at least one electrically isolated spring-biased electrical contact (Fig. 18).

10. Claims 1-8, 12-13, 18-19, and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,950,173 to Minemura et al.

Regarding to claim 1, Minemura et al disclose a method of fabricating a substrate assembly comprising: providing a substrate (3) having a first surface and an opposing second surface; forming a layer (Figs. 7) of resilient conductive material (shape memory alloys) on at least a portion of at least one of said first and second surfaces of said substrate (Fig. 1a); forming

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at least one electrically isolated spring-biased electrical contact (2) in said layer of resilient conductive material; forming at least one electrically isolated conductive trace (first pattern) in said layer of resilient conductive material, said at least one electrically isolated conductive trace having an end terminating at said at least electrically isolated spring-biased electrical contact (Col. 2, lines 20-21); and treating said layer of resilient conductive material after said forming said at least one electrically isolated spring-biased electrical contact to achieve at least one desired physical characteristic of said layer of resilient conductive material (by etching to form a design shape or heating see Col. 2, lines 50-60).

Regarding claims 2 and 3, Minemura et al disclose the step of providing a laminate sheet of said resilient conductive material; and bonding said laminate sheet to said at least one of said first and second surfaces of said substrate (See Figs. 7) by adhering said laminate sheet to said at least one of said first and second surfaces of said substrate using an adhesive or bonding said laminate sheet to said at least one of said first and second surfaces of said substrate using a thermocompression bonding process (and Col. 10, lines 11-35).

Regarding claims 4 and 5, Minemura et al disclose the step of forming said layer of resilient conductive material on surface of said substrate using a deposition process, wherein said deposition process comprises chemical vapor deposition or sputtering (Col. 7, lines 15-25).

Regarding claims 6 and 7, Minemura et al disclose at least one via (6) in said substrate (3), said at least one via underlying said at least one electrically isolated spring-biased electrical contact (2) and a via opening only to said at least one of said first and second surfaces of said substrate (Figs. 1-3).

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Regarding claims 8 and 12 (see Fig. 3 of Minemura et al shows process of performing contact spring having deflection portion which is permanent of claim 8, and that as recited in claim 12, lines 1-4).

Regarding claim 13, Minemura et al teach the forming electrical contact and conductive trace in said layer of resilient conductive material is effected by etching said layer of resilient conductive material (Col. 4, lines 60-64).

Regarding claims 18-19 and 21-22, Minemura et al disclose a dielectric layer (14) overlying said layer of resilient conductive material, said dielectric layer being formed with at least one aperture (15) there through substantially aligned with said at least one electrically isolated spring-biased electrical contact and the dielectric layer to be of sufficient thickness to encompass at least a portion of each lead element of an integrated circuit device contacting said at least one electrically isolated spring-biased electrical contact (Figs. 9).

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fjelstad et al in view of US Patent No. 4,950,173 to Minemura et al.

Fjelstad et al do not form the layer of resilient conductive material by using deposition process comprises chemical vapor deposition (CVD) or sputtering. Minemura et al teach the



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forming of resilient conductive material by CVD or sputtering (Minemura Col. 4, line 65 to Col. 5, line 12) for attaining a good adhesion between the resilient conductive material and the substrate (Col. 5, lines 22-25). It would have been oblivious to one having ordinary skill in the art at the time the invention was made to modify the invention of Fjelstad et al by forming the resilient conductive material by CVD or sputtering as taught by Minemura et al to form a good adhesive bonding between facilitate the resilient conductive material and the substrate.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior of references cited for the teachings of method of forming substrate assembly.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghai D. Nguyen whose telephone number is (571)-272-4566. The examiner can normally be reached on Monday-Friday (9:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (571)-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DN  
February 4, 2005

  
MINH TRINH  
PRIMARY EXAMINER